EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	2	"20010033839"	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/05/10 17:22
L2	0	"010033839"	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/05/10 16:48
L3	0	"0010033839"	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/05/10 16:48
L4	0	"200010033839"	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/05/10 16:49
L5	2	"20050181313"	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/05/10 16:49
L6	0	apoptosis same cancer same porphryin	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/05/10 17:23
L7	35049	apoptosis	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/05/10 17:23
L8	218612	cancer	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/05/10 17:23
L9	77	porphryin	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/05/10 17:24

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L10	44	porphryin and cancer	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/05/10 17:24
L11	9	porphryin and apoptosis	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/05/10 17:25
L12	9	porphryin and apoptosis and cancer	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/05/10 18:08
L13	14	"6087493"	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/05/10 18:09
S1	1161080	cancer and gold complexes	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/05/10 16:45
S2	1157560	cancer with gold complexes	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/01/17 18:52
S3	7812	(cancer) with (gold complexes)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/01/17 19:01
S4	9099	(cancer apoptosis) with (gold complexes)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/01/17 19:11
S5	1198	metalloporphyrin	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/01/17 19:15
S6	352	metalloporphyrin and cancer	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/01/17 19:16

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Principal Investigator: Maria da Graça Henriques Vicente, Ph.D.

Co-PI Benjamin F. Edwards, Ph.D.

Institution: University of California Davis, Department of Neurological Surgery

Research Title: Synthetic Porphyrin Systems for Tumor Detection and Destruction

Abstract

Porphyrin-like macrocycles have been shown to selectively localize in a wide variety of neoplastic tissues, and this property provides the basis for their use in the photodynamic therapy (PDT) of tumors. PDT relies on the selective uptake of a photosensitizer in tumor tissues, followed by generation of singlet oxygen and other cytotoxic species upon irradiation with red light. The only FDA-

approved PDT drug is a porphyrin derivative (Photofrin®), which has to date been used to treat over ten thousand cancer patients world-wide. In addition to necrosis (as the result of oxidative damage) it has been recently shown that some porphyrins also induce apoptosis (programmed cell death). Active research in the area of development of highly efficient PDT photosensitizers is currently underway, since Photofrin® presents the disadvantages of being a complex mixture of compounds of variable composition, with only a weak absorption at 630 nm. All the promising new PDT photosensitizers currently in human clinical trials are porphyrin-based compounds with enhanced absorptions in the red region (chlorins, benzoporphyrins, and phthalocyanines).

Another therapeutic modality for cancer treatment, the Boron Neutron Capture Therapy (BNCT) is based on the 10B (n,4He)7Li nuclear reaction which occurs when a 10B nucleus captures a reactor-generated low-energy neutron to produce cytotoxic high linear energy transfer particles (4He2+, 7Li3+). Due to their tendency to selectively accumulate in neoplastic tissue, porphyrins are attractive boron carriers for BNCT. Our research program is aimed at the development of new porphyrin-based capture agents and photosensitizers for application in both BNCT and PDT. The correlation of the chemical structure and biological activity of these compounds is studied in order to establish metrics for the successful design of effective sensitizers for cancer treatment.

Porphyrins and their diamagnetic metal complexes are highly fluorescent thus providing a means for the detection of

tumor cells by confocal fluorescence microscopy, and an effective treatment planning. Furthermore, tumor-selective paramagnetic metal complexes of porphyrins [for example Mn(III) complexes] are effective contrast agents for MRI. Radiolabeled derivatives of porphyrins with 3H, 14C, and 125I are useful radiodiagnostic agents. Porphyrin complexes bearing radioisotopic metals have also been shown to retain their in vitro and in vivo localization properties in tumor cells and to be highly promising radiopharmaceuticals for tumor detection and antibody labelling. Some porphyrins have also been shown to be active radiosensitizers, and to display sensitizer enhancement ratios up to 2.4. Other non-cancerous therapeutic applications of porphyrins include treatment of atherosclerosis, vascular restenosis, age-related macular regeneration, rheumatoid arthritis and blood sterilization.

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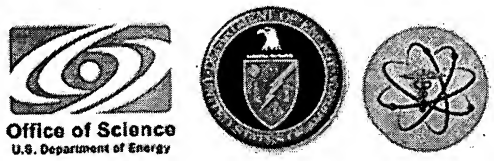

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